CLAIMS

1. A nozzle arrangement adapted to be fitted to a pressurised vessel or container and to permit fluid present in said vessel or container to be dispensed through it under pressure, said nozzle arrangement having a body which defines an inlet, an outlet, and an internal fluid flow passageway through which fluid can flow from said inlet to said outlet, said body comprising actuator means which is adapted, upon operation, to engage and open an outlet valve of the pressurised vessel or container to which the arrangement is attached and thereby enable fluid present in the pressurised vessel or container to be released into the nozzle arrangement,

wherein the body of the nozzle arrangement comprises a resiliently deformable wall member which defines at least a portion of the fluid flow passageway, said resiliently deformable wall and being configured such that, when fluid is caused to flow through the nozzle arrangement in response to the operation of said actuator means, said wall undergoes a resilient deformation from an initial resiliently-biased configuration in which said portion of the passageway is closed to a distended configuration whereby fluid can flow through said portion of the passageway and be dispensed through the outlet, said wall being further configured to revert to the initial resiliently-biased configuration when the operation of the actuator means has ceased and thereby cause any fluid remaining in said portion of the passageway to be expelled.

2. A nozzle arrangement according to claim 1, wherein said portion of the internal fluid flow passageway is disposed adjacent to said outlet.

3. A nozzle arrangement according to claim 1 or 2, wherein said portion of the internal fluid flow passageway adjoins said outlet.

4. A nozzle arrangement according to any preceding claim, wherein the resiliently deformable wall defines an internal surface of the fluid flow passageway which extends for substantially the entire length of the passageway.

5. A nozzle arrangement according to claim 5, wherein the resiliently deformable wall defines an internal surface of the fluid flow passageway which extends for the entire length of the passageway.

6. A nozzle arrangement according to any preceding claim, wherein the outlet is defined, at least in part, by a resiliently deformable wall of the body, which is configured such that, when fluid is caused to flow through the nozzle arrangement in response to the operation of said actuator means, said wall undergoes a resilient deformation from an initial resiliently-biased configuration in which the outlet is closed to a distended configuration whereby fluid can flow through said outlet, said wall being further configured to revert to the initial resiliently-biased configuration when the operation of the actuator means has ceased and thereby cause any fluid remaining in said outlet to be expelled.

7. A nozzle arrangement according to claim 6, wherein the outlet is an open end of said portion of the passageway and the resiliently deformable wall which defines the outlet is the end of the resiliently deformable wall which defines said portion of the fluid flow passageway.

8. A nozzle arrangement according to any preceding claim, wherein the resilience of the resiliently deformable wall is uniform along its length.

9. A nozzle arrangement according to any one of claims 1 to 7, wherein the resiliently deformable wall which defines an internal surface of the fluid flow passageway is adapted such that, when the operation of the actuator has ceased and the resiliently deformable wall reverts to the initial resiliently-biased

configuration, any fluid remaining in said portion of the passageway is expelled through the outlet.

10. A nozzle arrangement according to claim 9, wherein the resilience of said resiliently deformable wall varies along its length.

11. A nozzle arrangement according to claims 9 or 10, wherein the resilience or elasticity of the resiliently deformable wall is greater at locations disposed from the outlet than at locations proximate to said outlet so that, when the operation of the actuator has ceased, the resiliently deformable wall elastically recoils to the collapsed configuration preferentially at positions further way from the outlet so as to cause any fluid remaining in said portion of the internal passageway to flow towards, and be expelled though, the outlet.

12. A nozzle arrangement according to claim 11, wherein in the resiliently deformable wall defines an internal surface which extends for all, or substantially all, of the length of the fluid flow passageway, and the resilience of the resiliently deformable wall is greater at the inlet end of the passageway than at positions proximate to said outlet, so that, when the operation of the actuator is ceased, the resiliently deformable wall reverts to the initial resiliently-biased configuration preferentially at the inlet so as to cause any fluid remaining in said passageway to flow towards, and be expelled though, the outlet.

13. A nozzle arrangement according to claims 11 or 12, wherein the resilience or elasticity of said resilient deformable wall increases proportionally with increasing distance from the outlet.

14. A nozzle arrangement according to any preceding claim, wherein two or more walls of the body define the internal fluid flow passageway, at least one of which is resiliently deformable and, in the initial resiliently-biased

configuration, is resiliently biased against the opposing walls to define a closed passageway.

15. A nozzle arrangement according to claim 14, wherein the internal fluid flow passageway is defined by two walls of the body, at least one of said walls being resiliently deformable and providing an internal surface of the passageway which is resiliently biased against the surface formed by the opposing wall in the initial resiliently-biased configuration so as to define a closed passageway.

16. A nozzle arrangement according to claim 15, wherein only one of said walls is resiliently deformable and is resiliently biased to abut the opposing wall in the resiliently biased configuration.

17. A nozzle arrangement according to any preceding claim, wherein the body of the nozzle arrangement is formed from two interconnected parts, each of said parts having respective abutment surfaces which are contacted together, wherein portions of said abutment surfaces form the walls of the body defining said internal fluid flow passageway and at least one of said abutment surfaces or said portions is resiliently deformable and configured to assume a distended configuration when the actuation means is operated and fluid is caused to flow through the nozzle arrangement under pressure, and be resiliently biased against the opposing abutment surface so as to define a closed passageway at all other times.

18. A nozzle arrangement according to claim 17, wherein a first of said abutment surfaces comprises a groove formed in its abutment surface, which extends from an inlet defined by the body to an edge of the abutment surface, said groove forming a first wall of the fluid flow passageway and being adapted to receive a corresponding resiliently deformable ridge member formed on the abutment surface of the second of abutment surfaces, said ridge being

resiliently biased against the surface of said groove when the two abutment surfaces are contacted together to form said initial resiliently biased configuration, said groove being further configured to deform away from said groove to a distended configuration whereby an open passageway is defined when the actuation means is operated and fluid is caused to flow through the arrangement under pressure.

19. A nozzle arrangement according to claim 10, wherein the terminus of fluid flow passageway at the edge of abutment surfaces defines the outlet.

20. A nozzle arrangement according to any one of claims 17 to 19, wherein said two parts are releasably connected together.

21. A nozzle arrangement according to any one of claims 17 to 19, wherein said two parts are permanently connected together.

22. A nozzle arrangement according to any one of claims 17 to 21, wherein said parts are made from the same material.

23. A nozzle arrangement according to claim 22, wherein said parts are made from a rigid/flexible plastic material.

24. A nozzle arrangement according to any one of claims 17 to 21, wherein one of said parts is made from a rigid plastics material and the other of said parts is made from a resiliently deformable material.

25. A nozzle arrangement according to any one of claims 17 to 24, wherein a sealing means is disposed between said abutment surfaces to prevent any fluid that leaks from said internal fluid flow passageway from seeping out of the nozzle arrangement between the two opposing abutment surfaces.

26. A nozzle arrangement according to any one of the preceding claims, wherein a sealing means is disposed in said fluid flow passageway to provide a substantially airtight seal.

27. A nozzle arrangement according to claim 26, wherein said seal comprises a groove on said resiliently deformable wall and extending across the width of the internal fluid flow passageway, said groove being adapted to receive, and form a sealing engagement with, a ridge member formed on an opposing wall when said resiliently deformable wall is in its initial resiliently biased configuration.

28. A nozzle arrangement according to claim 26, wherein said seal comprises a ridge member disposed on said resiliently deformable wall and extending across the width of the internal fluid flow passageway, said ridge member being adapted to be received with, and form a sealing engagement with, a groove member formed on an opposing wall when said resiliently deformable wall is in its initial resiliently biased configuration.

29. A nozzle arrangement according to any one of claims 26 to 28, wherein said seal is disposed proximate to said outlet.

30. A nozzle arrangement according to any preceding claim, wherein the nozzle arrangement is configured such that the inlet through which fluid accesses the fluid flow passageway during use is disposed directly adjacent to the outlet valve of the pressurised fluid filled vessel or container to which it is adapted to be attached so that fluid dispensed through the outlet valve flows a minimal distance before entering the fluid flow passageway.

31. A pressurised fluid-filled vessel or container comprising an outlet valve and a nozzle arrangement as defined in any one of claims 1 to 30 fitted thereto such that fluid ejected through said outlet valve during use is caused to flow through said nozzle arrangement.

32. An outlet device adapted to be fitted to a non-pressurised vessel or container and to permit fluid present in said vessel or container to be dispensed through it under pressure, said outlet device having a body which defines an inlet, an outlet and an internal fluid flow passageway through which fluid can flow from said inlet to said outlet under pressure;

wherein the body of the nozzle arrangement comprises a resiliently deformable wall that forms an internal surface of the fluid flow passageway which extends for substantially the entire length of the fluid flow passageway, said resiliently deformable wall and being configured such that, when fluid is caused to flow through the outlet device under pressure, said wall undergoes a resilient deformation from an initial resiliently-biased configuration in which the substantially entire length of said passageway is closed to a distended configuration whereby fluid can flow through said portion of the passageway and be dispensed through the outlet, said wall being further configured to revert to the initial resiliently-biased configuration when the operation of the actuator means is ceased and thereby cause any fluid remaining in said passageway to be expelled.

33. A nozzle arrangement according to claim 32, wherein the resiliently deformable wall defines an internal surface of the fluid flow passageway which extends for the entire length of the passageway.

34. An outlet device according to claim 32 or claim 33, wherein the outlet is defined, at least in part, by a resiliently deformable wall of the body, which is configured such that, when fluid is caused to flow through the outlet device under pressure, said wall undergoes a resilient deformation from an initial resiliently-biased configuration in which the entire length of said passageway is closed to a distended configuration whereby fluid can flow through said portion of the passageway and be dispensed through the outlet, said wall being further configured to revert to the initial resiliently-biased configuration when the fluid

ceases to flow through the outlet device under pressure and thereby cause any fluid remaining in said passageway to be expelled.

35. An outlet device according to any one of claims 32 to 34, wherein the outlet is an open end of said portion of the passageway and the resiliently deformable wall which defines the outlet is the end of the resiliently deformable wall which defines said portion of the fluid flow passageway.

36. An outlet device according to any one of claims 32 to 35, wherein the resilience of the resiliently deformable wall is uniform along its length.

37. An outlet device according to any one of claims 32 to 35, wherein the resiliently deformable wall which defines an internal surface of the fluid flow passageway is adapted such that, when fluid ceases to flow through the outlet device under pressure and the resiliently deformable wall reverts to the initial resiliently-biased configuration, any fluid remaining in said portion of the passageway is expelled through the outlet.

38. An outlet device according to claim 37, wherein the resilience of said resiliently deformable wall varies along its length.

39. An outlet device according to claim 37 or 38, wherein the resilience of the resiliently deformable wall is greater at locations disposed from the outlet than at locations proximate to said outlet so that, when the fluid ceases to flow through the outlet device under pressure, the resiliently deformable wall elastically recoils to the collapsed configuration preferentially at positions further way from the outlet so as to cause any fluid remaining in said portion of the internal passageway to flow towards, and be expelled though, the outlet.

40. An outlet device according to claim 39, wherein in the resiliently deformable wall defines an internal surface which extends for all, or substantially all, of the length of the fluid flow passageway, and the resilience

of the resiliently deformable wall is greater at the inlet than at positions proximate to said outlet, so that, when fluid ceases to flow through the outlet device under pressure, the resiliently deformable wall reverts to the initial resiliently-biased configuration preferentially at the inlet so as to cause any fluid remaining in said passageway to flow towards, and be expelled though, the outlet.

41. An outlet device according to claims 39 or 40, wherein the resilience or elasticity of said resilient deformable wall increases with increasing distance from the outlet.

42. An outlet device according to any one of claims 32 to 41, wherein two or more walls of the body define the internal fluid flow passageway, at least one of which is resiliently deformable and, in the initial resiliently biased configuration, is resiliently biased against the opposing walls to define a closed passageway.

43. An outlet device according to claim 42, wherein the internal fluid flow passageway is defined by two walls of the body, at least one of said walls being resiliently deformable and providing an internal surface of the passageway which is resiliently biased against the surface formed by the opposing wall in the initial resiliently-biased configuration so as to define a closed passageway.

44. An outlet device according to claim 43, wherein only one of said walls is resiliently deformable and is resiliently biased to abut the opposing wall in the resiliently biased configuration.

45. An outlet device according to any one of claims 32 to 44, wherein the body of the outlet device is formed from two interconnected parts, each of said parts having respective abutment surfaces which are contacted together, wherein portions of said abutment surfaces form the walls of the body defining said internal fluid flow passageway and at least one of said abutment surfaces

or said portions is resiliently deformable and configured to assume a distended configuration when the actuation means is operated and fluid is caused to flow through the outlet device under pressure, and be resiliently biased against the opposing abutment surface so as to define a closed passageway at all other times.

46. An outlet device according to claim 45, wherein a first of said abutment surfaces comprises a groove formed in its abutment surface, which extends from an inlet defined by the body to an edge of the abutment surface, said groove forming a first wall of the fluid flow passageway and being adapted to receive a corresponding resiliently deformable ridge member formed on the abutment surface of the second of abutment surfaces, said ridge being resiliently biased against the surface of said groove when the two abutment surfaces are contacted together to form said initial resiliently biased configuration, said groove being further configured to deform away from said groove to a distended configuration whereby an open passageway is defined when the actuation means is operated and fluid is caused to flow through the arrangement under pressure.

47. An outlet device according to claim 46, wherein the terminus of fluid flow passageway at the edge of abutment surfaces defines the outlet.

48. An outlet device according to any one of claims 45 to 47, wherein said two parts are releasably connected together.

49. An outlet device according to any one of claims 45 to 47, wherein said two parts are permanently connected together.

50. An outlet device according to any one of claims 45 to 47, wherein said parts are made from the same material.

51. An outlet device according to claim 50, wherein said parts are made from a rigid/flexible plastics material.

52. An outlet device according to any one of claims 45 to 49, wherein one of said parts is made from a rigid plastics material and the other of said parts is made from a resiliently deformable material.

53. An outlet device according to any one of claims 45 to 49, wherein a sealing means is disposed between said abutment surfaces to prevent fluid leaking from said internal fluid flow passageway and seeping out of the outlet device between the two opposing abutment surfaces.

54. An outlet device according to any one of claims 32 to 53, wherein a sealing means is disposed in said fluid flow passageway to provide a substantially airtight seal.

55. A nozzle arrangement according to claim 54, wherein said seal comprises a groove on said resiliently deformable wall and extending across the width of the internal fluid flow passageway, said groove being adapted to receive, and form a sealing engagement with, a ridge member formed on an opposing wall when said resiliently deformable wall is in its initial resiliently biased configuration.

56. A nozzle arrangement according to claim 54, wherein said seal comprises a ridge member disposed on said resiliently deformable wall and extending across the width of the internal fluid flow passageway, said ridge member being adapted to be received within, and form a sealing engagement with, a groove member formed on an opposing wall when said resiliently deformable wall is in its initial resiliently biased configuration.

57. A nozzle arrangement according to any one of claims 54 to 56, wherein said seal is disposed proximate to said outlet.

58. An outlet valve as claimed in any one of claims 32 to 57, wherein said outlet valve is a pump or trigger actuated nozzle arrangement adapted to be fitted to a vessel or container and to permit fluid present in said vessel or container to be dispensed through it under pressure, said nozzle arrangement comprising:

(i) a compressible chamber;

(ii) an inlet through which fluid is drawn from said container into said compressible chamber;

(iii) an outlet;

(iv) an internal fluid flow passageway which connects said chamber to said outlet; and

(v) a pump or trigger actuator, the operation of which causes fluid present in the chamber to flow though the internal fluid flow passageway and out of said outlet under pressure;

wherein the body of the nozzle arrangement comprises a resiliently deformable wall which defines an internal surface of the fluid flow passageway that extends for its entire length, said resiliently deformable wall and being configured such that, when fluid is caused to flow through the nozzle arrangement in response to the operation of the pump or trigger actuator, said wall undergoes a resilient deformation from an initial resiliently-biased configuration in which the entire length of said passageway is closed to a distended configuration whereby fluid can flow through said portion of the passageway and be dispensed through the outlet, said wall being further configured to revert to the initial resiliently-biased configuration when the operation of the pump or trigger actuator is ceased and thereby cause any fluid remaining in said passageway to be expelled.

59. A non-pressurised vessel or container having an outlet, said outlet having an outlet device in any one of claims 32 to 58 fitted thereto.